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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,397	06/06/2002	Zsolt John Laczik	9267-17(165381)	2972

23973 7590 04/21/2005

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EXAMINER

EVANS, GEOFFREY S

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/088,397		LACZIK ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Geoffrey S. Evans		1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9 February 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

*HL*

### DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,2,4, 6-9,11,14,15,16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasagawa in EP 679,469 A1 in view of Nishida et al. in Japan Patent No. 11-64,797. Sasagawa discloses a laser conditioning apparatus (element 5) for use in material processing (page 1,lines 5-7) of a workpiece (8), the conditioning apparatus comprising an adapter housing (part of 5, generating unit) containing a phase filter (other part of 5), the adapter housing having connection means for mounting element 5 between a coherent light source (element 1) and two focusing units (elements 7a, 7b in figure 16). The phase filter has a plurality of regions with each region being assigned a predetermined phase shift from a plurality of possible phase shifts, the phase shifts of the plurality of regions being chosen in dependence on the desired intensity distribution of the light incident on the workpiece which extends in at least a spatial dimension parallel to the optical axis beyond the focused spot produced by the laser apparatus in the absence of the filter (e.g. see page 14,line 4 to page 5,line 57). Nishida et al. in Japan Patent No. 11-64,797 teaches as shown in figure 1 parallel beams exiting a phase filter (see paragraph 11). It would have been obvious to adapt Sasagawa in view of Nishida et al. to provide this to more simply modify the laser beams exiting the phase filter. Regarding claim 2, see page 20,lines 13-16 of Sasagawa. Regarding claims 6

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and 14, Sasagawa discloses having the regions of the filter be 0 or 180 degrees, i.e. 0 or  $\pi$  radians (see page 6, lines 27-30). Regarding claims 9, Sasagawa discloses iteratively optimizing the phase shifts assigned to each region so as to determine final phase shifts for each regions so as to determine final phase shifts for each region of the filter (page 16, lines 19-25); and generating a phase filter with a plurality of regions, each region having the final phase determined by the iterative optimization step (page 16, lines 25-26). Regarding claim 11, Sasagawa discloses a method of manufacturing a phase filter (element 5) for use in laser material processing apparatus (see Figures 5-6 and 16), the method comprising the steps of determining a desired intensity distribution of light incident on a workpiece which extends in at least a spatial dimension parallel to the optical axis beyond the focused spot produced by the laser material removing apparatus in the absence of the filter (element 5, see page 16, lines 1-19); assigning initial respective phase shifts to a plurality of regions of the filter (5; see page 16, lines 27-30); determining an error factor with respect to the similarity of the intensity distribution; iteratively optimizing the phase shifts assigned to each region so as to determine final phase shifts for each regions so as to determine final phase shifts for each region of the filter (page 16, lines 19-25); and generating a phase filter with a plurality of regions, each region having the final phase determined by the iterative optimization step (page 16, lines 25-26). Nishida et al. teaches as shown in figure 1 parallel beams exiting a phase filter (see paragraph 11). It would have been obvious to adapt Sasagawa in view of Nishida et al. to provide this to more simply modify the laser beams exiting the phase filter.

3. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasagawa in view of Nishida et al. as applied to claims 1 and 4 above, and further in view of Gluckstead in U.S. Patent No. 6,011,874. Gluckstead teaches using a programmable spatial light modulator (e.g. see claim 26) as a phase filter in material processing (see column 18, lines 8-10). It would have been obvious to adapt Sasagawa in view of Nishida et al. and Gluckstead to provide this to quickly change the shape of the wavefront reaching the workpiece to be processed.

4. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasagawa in EP 679,469 in view of Nishida et al. as applied to claims 9 and 11 above, and further in view of Crossland et al. in U.S. Patent Application Publication No. 2001/0050787. Crossland et al. teaches computing a hologram using direct optimization by a direct binary search to create a complex hologram (e.g. see paragraph 95). It would have been obvious to adapt Sasagawa in view of Nishida et al. and Crossland et al. to provide this to create a complex hologram to be able to direct the laser beam wavefront as desired.

5. Applicant's arguments filed 9 February 2005 have been fully considered but they are not persuasive. Nishida et al. discloses a phase filter that passes the zero-order and first order beam.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

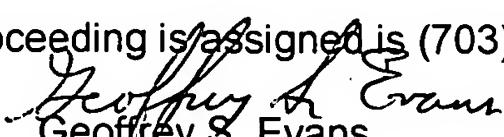
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Grandjean et al. in U.S. Patent No. 6,236,509 discloses a phase modulated wave front. Tatah in U.S. Patent No. 6,037,564 has a diffractive optical element shaped like a binary phase plate to beamsplit the laser beam into parallel laser beams. Haskal in U.S. Patent No. 3,705,758 has a phase filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571)-272-1171. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9306.

GSE

  
Geoffrey S. Evans  
Primary Examiner  
Group 1700